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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Hiroyuki HASEBE, et al.

Appln. No. 10/633,693

Confirmation No. 7610

Filed: August 5, 2003

For: DISCHARGE LAMP LIGHTING DEVICE

Docket No. Q76774

Group Art Unit: 2875

Examiner: Minh, A.

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of $500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: August 2, 2005

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
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Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37 Appellant is submitting an Appeal Brief to appeal from the final Office Action dated February 9, 2005 (hereinafter "the final Office Action), wherein claims 1-3 are rejected.[1] This Appeal Brief is accompanied by a Submission which includes the required appeal fee set forth in 37 C.F.R. § 41.20(b)(2). Appellant's Notice of Appeal was filed on June 9, 2005. Therefore, the present Appeal Brief is timely filed.

[1] Claims 1-3 have been twice rejected and, thus, are ripe for appeal.

Table of Contents

I. REAL PARTY IN INTEREST

The real party in interest is MITSUBISHI DENKI KABUSHIKI KAISHA (Assignee) by virtue of an assignment executed by the inventors (Appellant), on September 22, 2003, and recorded by the Assignment Branch of the U.S. Patent and Trademark Office on December 11, 2003 (at Reel 014780, Frame 0775).

II. RELATED APPEALS AND INTERFERENCES

Upon information and belief, there are no other prior or pending appeals, interferences, or judicial proceedings known to Appellant, Appellant's representatives or the Assignee that may be related to, be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

The present application was filed on August 5, 2003 with original claims 1-3. Claim 1 was amended in an Amendment Under 37 C.F.R. § 1.111 filed on November 18, 2004. No subsequent amendments were made to the claims.

Accordingly, claims 1-3 are the claims currently pending in the application. Claims 1-3, which have each been at least twice rejected, are the claims on appeal (*see* Claims Appendix).

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to a final rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Background

Among discharge lamps, high-intensity discharge lamps (HID bulbs) such as a metal halide bulb, a high-pressure sodium bulb, and a mercury bulb have been used as illuminating lamps (*e.g.*, in streetlamps), because the high-intensity discharge lamps provide wide light flux, high lamp efficiency, long life, etc. (Appellant's specification: p. 1, lns. 11-19).

To switch on a discharge lamp (bulb) of this type, starting pulses of a high voltage are superposed on a predetermined voltage applied to the bulb at the time of starting the bulb (Appellant's specification: p. 1, lns. 20-25). Therefore, a DC/DC converter and an inverter are provided for lighting the bulb stably, while an igniter (starter) is provided for generating the high-voltage pulses (*Id.*).

In particular, the polarity of a voltage Va output from the DC/DC converter 3, which is supplied with an input voltage from a DC power source 1 (*e.g.*, a car battery), is inverted periodically so that rectangular AC voltages (Vc and Vd) are applied to the bulb 6 (Appellant's specification: p. 2, lns. 4-19; and Figs. 5 and 6). The voltages Vc and Vd are formed as negative voltages to prevent devitrification of metal enclosed in the bulb 6 (*Id.*).

In related-art discharge lamps, all electric power supplied to the bulb is electric power output from the DC/DC converter (Appellant's specification: p. 3, lns. 10-19). Therefore, the output capacity of the DC/DC converter must be designed according to the amount of electric power required for switching on the bulb (*Id.*). Consequently, in a discharge lamp lighting

device (*e.g.*, a car headlamp) requiring high electric power at the initial stage of lighting, it was not possible to reduce the size of the DC/DC converter (*Id.*).

Claims 1-3

The present invention provides a discharge lamp lighting device in which a reduction in size (and cost) can be attained (Appellant's specification: p. 3, lns. 22-24). In an exemplary embodiment of the present invention, a discharge lamp is supplied with (1) electric power of a negative voltage boosted by a DC/DC converter and (2) electric power of a positive voltage given directly from a DC source (Appellant's specification: p. 4, lns. 1-3; and claim 1).

Furthermore, the electric power of the positive voltage may be given from the DC source through a voltage drop circuit (Appellant's specification: p. 4, lns. 4-5; and claim 2). Additionally, this voltage drop circuit may include an inverter (Appellant's specification: p. 4, ln. 6; and claim 3).

Means-Plus-Function Claims

No means-plus-function or step-plus-function have been identified among the claims on appeal.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-3 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,489,732 to Ito et al. (hereinafter "Ito").

VII. ARGUMENT

It is respectfully submitted that appealed claims 1-3 are not anticipated by Ito for at least the following reasons. Accordingly, Appellant respectfully requests that the members of the Board reverse the Examiner's rejection of these claims.

Claim 1, which is the sole independent claim, recites, *inter alia*, that "said inverter inverts the polarity of a sum of a negative voltage boosted by said DC/DC converter and a positive voltage given from said DC source to generate an AC wave." Thus, in claim 1, the recited sum has two components: (1) a negative voltage boosted by the DC/DC converter and (2) a positive voltage given from the DC source.

The Examiner alleges that Ito discloses these recited components (the final Office Action: page 2; *citing* Ito: Fig. 1; col. 2:47-67 and col. 8:1-63). To the contrary, in Ito, the sole connection to the power source 2 is the line on which the voltage *Vin* from the power source 2 is provided to a DC power source circuit 3 (Ito: Fig. 1; and col. 2:47-67). The DC power source circuit 3 includes two DC-DC converters (*Id.*). A first DC-DC converter 3A generates a positive polarity output from *Vin*, while a second DC-DC converter 3B generates a negative polarity output from *Vin* (*Id.*).

Ito fails to disclose or suggest that a positive voltage given from the power source 2 (along with a negative voltage boosted by a DC-DC converter) are both used in the generation of an AC voltage. Instead, in Ito, the positive polarity output *Vdcp*, like the negative polarity output voltage *Vdcn*, is output from a DC-DC converter and is <u>not</u> provided from the power source 2.

Indeed, according to Ito, power sources, the voltages of which are the same, are used on both a positive side (to1) and a negative side (to2). Conversely, according to claim 1, a positive side voltage is set to the DC source (*e.g.*, the battery) voltage.

Accordingly, Ito fails to disclose each and every feature recited in claim 1. Therefore, claim 1 is not anticipated by Ito. It follows that claims 2 and 3 are not anticipated by Ito, at least by virtue of their dependency.

In conclusion, for the reasons set forth above, Appellant respectfully requests the members of the Board to reverse the rejections of the appealed claims and to find each of the claims allowable as defining subject matter that is patentable over the art of record.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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CLAIMS APPENDIX

CLAIMS 1-3 ON APPEAL:

1. A discharge lamp lighting device comprising:

a DC/DC converter for boosting electric power given from a DC source;

an inverter; and

an igniter,

wherein said inverter inverts the polarity of a sum of a negative voltage boosted by said DC/DC converter and a positive voltage given from said DC source to generate an AC wave, and

wherein said igniter receives said AC wave and supplies a high voltage to said discharge lamp at a time of switching on said discharge lamp.

2. The discharge lamp lighting device according to Claim 1, further comprising a voltage drop circuit through which electric power of a positive voltage is given from said DC source.

3. The discharge lamp lighting device according to Claim 2, wherein said voltage drop circuit includes an inverter.

EVIDENCE APPENDIX:

NONE.

RELATED PROCEEDINGS APPENDIX

NONE.